

**REMARKS**

Applicant respectfully requests reconsideration of the present application in view of the remarks that follow.

***Status of the claims***

Claims 1-5 and 7-24 and 44 are currently pending, with claims 1, 13, 17 and 22 being independent claims. No claims have been amended or cancelled.

***Double Patenting***

The PTO states that claims 1-5, 7-24 and 44 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 58-77 of co-pending U.S. Patent Application No. 10/591,960. Applicant will address this rejection when patentable subject matter has been identified in this or the '960 application and request the examiner to hold this rejection in abeyance.

***Rejection under 35 USC §103***

*Doty, Wolff, Dutta and Salansky fail to teach the treating lupus according to claim 22*

Claims 22-24 and 44 are alleged to be unpatentable over the combined teachings of Doty et al., (U.S. Patent No. 5,374,825) in view of Wolff, (U.S. Patent No. 4,703,184) and Dutta Published Application No. US 2005/0201963 and further in view of Salansky et al., (U.S. Patent No. 6,494,900).

At issue is the examiner's contention that the inventive lupus phototherapy methodology that comprises providing UVA light from a light emitting diode or nanostructure would be obvious in view of the combined teachings of the cited references. Applicant respectfully disagrees with the propriety of this rejection.

As acknowledged by the examiner, Doty does not teach or suggest the use of UVA light in phototherapy. Doty's focus is on an apparatus for measuring and controlling the amount of UV light exposure during tanning, and a method for using the disclosed apparatus.

Doty teaches the use of photodiodes to measure the intensity of UV light emitted by UV light emitting bulbs during tanning, with no suggestion about the use of a nanostructure UV light emitting device or a light emitting diode as the source of UV light as recited in claim 22.

Doty would be understood by a skilled artisan, therefore, to teach the use of a photodiode as a detector, rather, than a light emitting source.

To remedy the deficiencies in Doty, the examiner turns to Wolff and Dutta. The examiner asserts that Wolff discloses using UVA light for tanning. Applicant emphasizes however, that Wolff does not suggest using UVA light for therapeutic applications, much less for treating lupus. Furthermore, Wolff is silent about a light emitting diode or a nanostructure UV light emitting device as the UV light source. Wolff exemplifies a skin tanning apparatus that uses “long tubular radiation emitting lamps...” as the source of UV light. See Abstract.

To teach a nanostructure UV light source, the examiner turns to Dutta whose focus is on a method for fabricating passivated nanoparticles to overcome the problem of nanoparticle agglomeration. There is no suggestion in Dutta, however, for using a nanoparticle device to produce UV for the treatment of lupus as claimed. In the absence of such a suggestion, a skilled artisan would not understand, or be motivated to use a UV light emitting nanoparticle device in phototherapy applications.

Moreover, Salansky cited to teach lupus therapy, makes no suggestion to lead a skilled artisan to the use of a nanoparticle device for producing UV. Salansky is noted to merely disclose as background information, that UV or red light was used to treat pockmarks and lupus. (Salansky at col. 1, lines 17-20). However, no mention of UVA radiation is made.

The focus of this patent, however, is on the use of visible and IR radiation having selected optical parameters, in low energy photon therapy (LEPT) used for treating a range of biological tissue disorders. Thus, Salansky teaches away from using UV radiation of the prior art since the only mention of UV is in the admitted prior art section and the summary and detailed description sections of Salansky describes the benefits of visible and IR radiation. Nowhere, does Salansky disclose using UVA light. Instead, the specification and the data in

the tables show that the wavelength of light used is in the 400 to 2000 nm range (col. 3, lines 48) attributed to non-UV wavelengths.

To summarize, Doty teaches to control the amount of UV radiation from a UV lamp during tanning, Wolff teaches UVA radiation from a lamp for tanning, Dutta teaches nanoparticles and Salansky teaches using visible or IR radiation for phototherapy and than the prior art taught using UV radiation (presumable from a lamp) for phototherapy. Thus, even if there was reason to combine the references, there is no teaching to use UVA radiation for phototherapy as recited in claim 22. Furthermore, there is no teaching of using a nanostructure or LED UVA radiation source as recited in claim 22.

Accordingly, there is compelling evidence to support the Applicant's position that the PTO has failed to present a case for *prima facie* obviousness. Salansky in combination with Doty, Wolff and Dutta would still fail to render the claimed phototherapy methodology for treating lupus obvious. The section 103 rejection, therefore is improper and should be withdrawn.

*Doty, Wolff and Dutta in combination do not teach the claimed tanning and phototherapy system or method of claims 1-5 and 7-21*

Claims 1-5 and 7-21 are rejected as being unpatentable over Doty et al., (U.S. Patent No. 5,374,825) in view of Wolff, (U.S. Patent No. 4,703,184) and Dutta Pub. No. US 2005/0201963. Applicant respectfully traverses the rejections.

Claims 1 and 13 recite a system for tanning or providing phototherapy that includes a nanostructure UV light emitting device, such as a nanowire or a nanoparticle for emitting UVA light. Claim 17 recites a method for tanning or phototherapy by providing UVA light using a nanostructure UV light emitting device. As acknowledged by the Examiner Doty fails to teach or suggest UVA light. Doty's focus as emphasized by the Applicant above, is on an apparatus, its components and the use of the apparatus for measuring UV-light emitted by UV-bulbs.

Wolff cited by the examiner to remedy the absence of a teaching for UVA light in Doty, fails to suggest the use of UVA in phototherapeutic applications. Moreover, Wolff like Doty teaches the use of UV emitting lamps, rather than a nanostructure UV light emitting device as its source of UVA light. Without any suggestion in either reference for using a nanostructure to produce UV light, there would be no motivation for a skilled artisan to use a nanostructure UV light emitting device as claimed.

Although, the examiner cites Dutta to remedy this defect in Doty and Wolff, Dutta is non-analogous art. Dutta's focus is on a method for fabricating passivated nanoparticles, with a generic broad stroked disclosure for the use of the disclosed nanoparticles. Nowhere, does Dutta teach or even suggest using the nanoparticles or components made using the nanoparticles for tanning or phototherapeutic applications, particularly, a system in which the nanostructure light emitting device emits only UVA light as recited by claims 1, 13 and 17. Furthermore, there is not disclosed or implied reason to complicate the systems of Doty and Wolff which use UV lamps which apparently provide sufficient UV radiation as is well known in the art with Dutta's nanoparticles as a light source, which are not generally used in the art as a UV light source for applications such as tanning or phototherapy. Dutta therefore would hardly be a reference of choice for a skilled artisan to arrive at a tanning or phototherapy system or a method for providing these as recited in claims 1, 13 and 17.

Dutta fails to remedy the defects of Doty and Wolff, and the combination of these three references, contrary to the examiner's assertions fail to render obvious the claimed inventions. Claim 1, 13 and 17 are patentable over the cited references and the examiner is respectfully requested to withdraw this rejection.

*(a) Patentability of dependent claims 3, 15 and 19 in view of Doty, Wolff and Dutta*

Dependent claims 3 and 15 recite a system or a means for performing phototherapy respectively. Applicant states that neither Doty, Wolff nor Dutta disclose phototherapeutic applications, much less performing phototherapy using only UVA light. Claims 3 and 15 are therefore patentable over the three cited references for reasons other than their dependency on patentable base claims.

By the same token, claim 19 depends from patentable claim 17 and incorporates all its limitations. Thus, claim 19 is patentable for at least the same reasons mentioned above for claim 17. Moreover, claim 19 recites a method for providing phototherapy using UVA light. Again, Doty, Wolff and Dutta do not teach or suggest providing phototherapy, much less using UVA light only. Claim 19 therefore is patentable over these references for reasons other than its dependency on a patentable base claim.

All pending claims are patentable over the teachings of the cited references alone or in combination. Applicant respectfully urges the examiner to withdraw this rejection.

#### CONCLUSION

Applicant believes that the present application is in condition for allowance. The Examiner, therefore, is invited to contact the undersigned attorney should any further issues that warrant attention remain.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16 - 1.17, or credit any overpayment, to the same deposit account. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to the same deposit account.

Respectfully submitted,

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